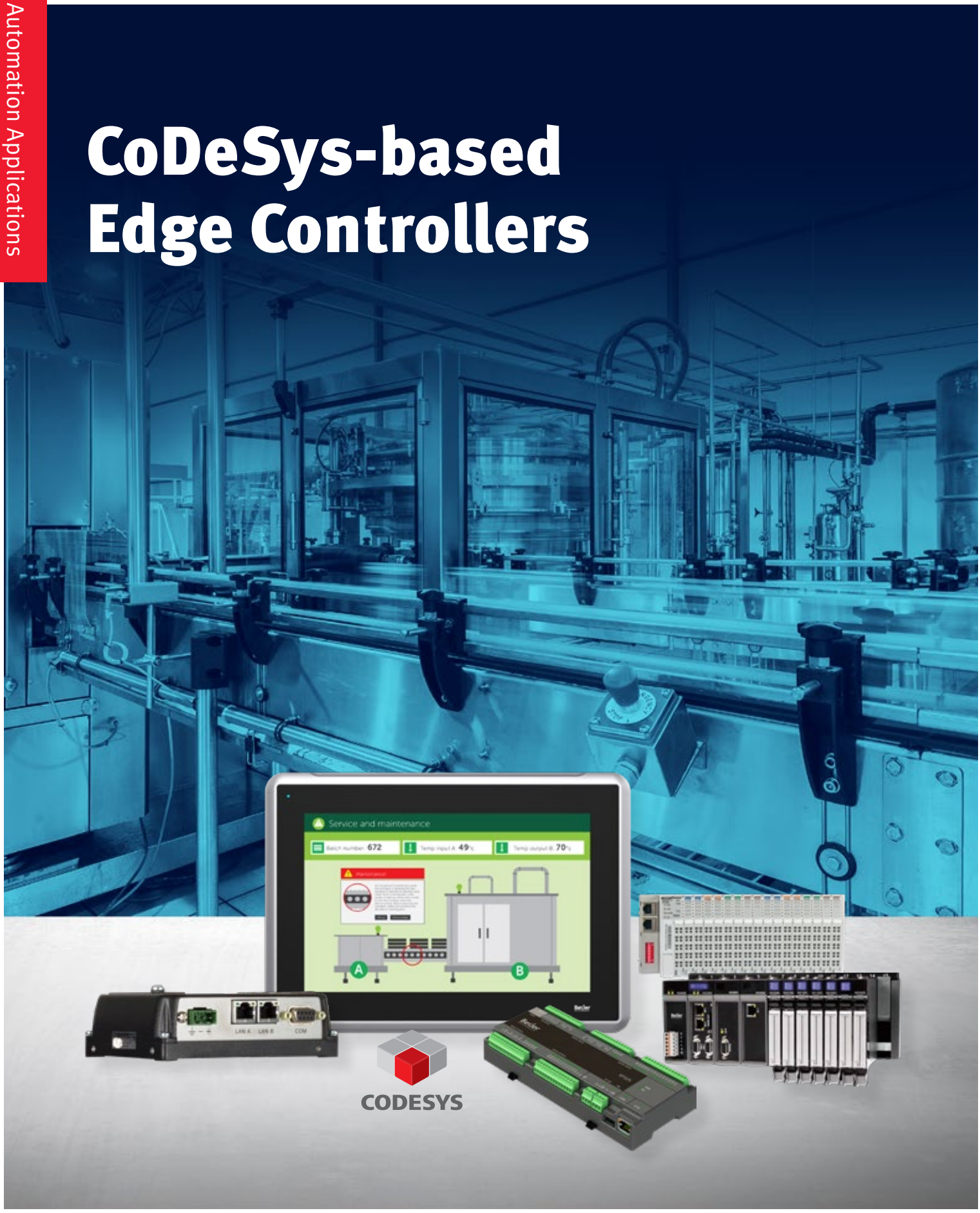
Automation Applications

CoDeSys-based Edge Controllers

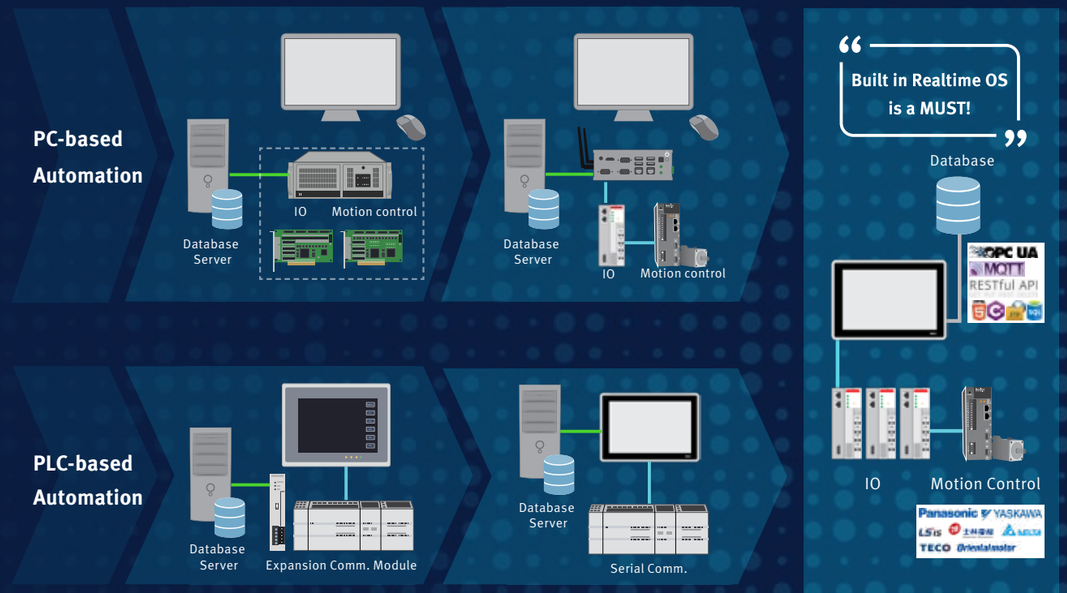


Beijer ELECTRONICS

People & Technology. Connected.

Controller with real-time OS

becomes the mainstream



Powerful CoDeSys control

The leading hardware-independent IEC 61131-3 development tool on the market. Fast program execution combined with generous program memory and CoDeSys's large instruction set means you can create complex projects that would otherwise require a modular PLC system. This makes the distributed CoDeSys controller a perfect choice for OEMs, machine builders and for other industrial applications. Millions of CoDeSys-compatible single devices, over 1,000 different device types from more than 400 manufacturers, and tens of thousands of CoDeSys end users across the globe all prove that CoDeSys is the leading manufacturer-independent IEC 61131-3 programming tool. This will allow users to develop applications and choose the hardware vendor freely, reducing its engineering and training needs.

IEC61131-3 FEATURES

ENGINEERING FEATURES

- Online debugging and monitoring
- Online changes
- Offline simulating
- Symbolic variables
- Easy hardware configuration
- System diagnostics
- Global variable lists

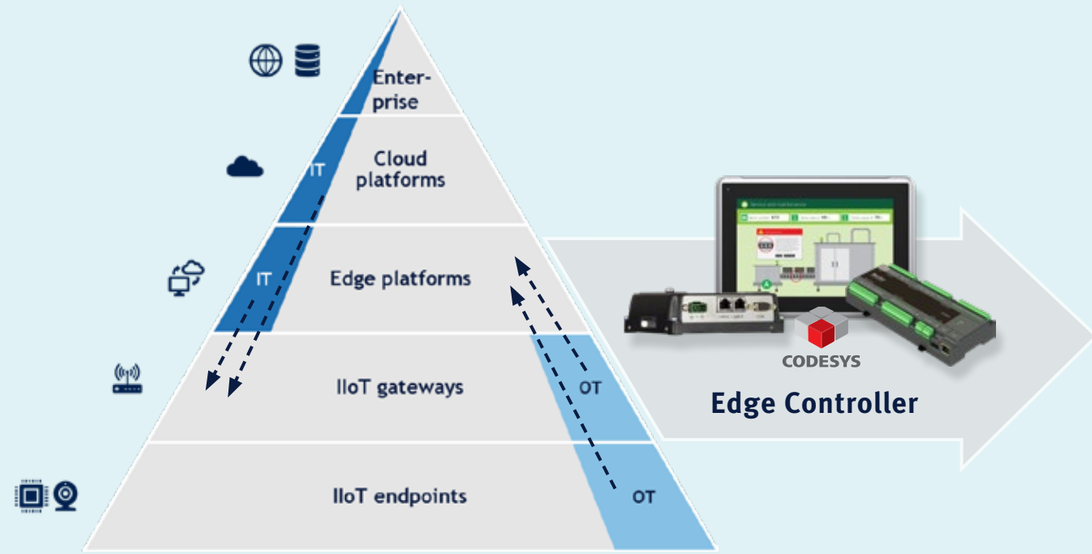
BACKUP FEATURES

- Source code memory area

The industrial IOT Landscape

CoDeSys-based edge controller

- **Same IIoT gateway or edge computing function but with more higher reliability**
- **Compact solution to save the space inside the control cabinet**



What we offer to you

X2 control | **IIoT gateway** | **Modular Controller** | **Compact controller** | **Remote I/O**

X2 control

X2 control panels combine industrial HMI and CoDeSys PLC functionality in the same compact hardware. Add standard distributed I/Os and you'll get an elegant, scalable and cost-effective solution that's cutting-edge.

Features

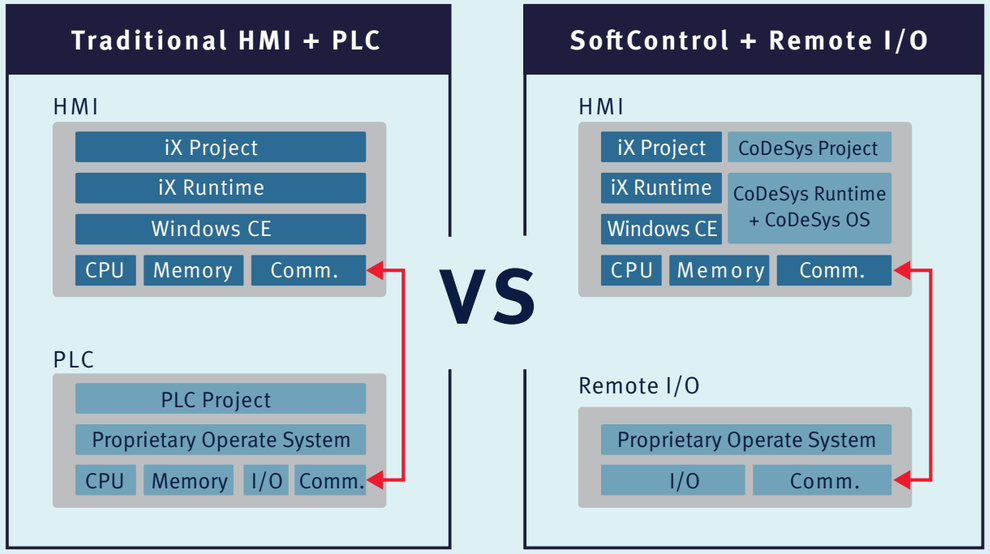
- A cost-efficient solution for medium to large sized HMI applications
- Display sizes 4, 7, 10, 12 and 15“
- High performance CPUs
- Communition with I/Os via high-speed EtherCAT fieldbus or Modbus
- The latest screen technology; LED backlight for clear screens with wide viewing angles
- Fast mounting and slim hardware dimensions for easy installation
- Marine Certified
- Dedicated SRAM for retain variables

Why unify PLC and HMI?

- Microprocessors of today can manage the operator interface tasks and the control logic from one single device
- Combined with standard modern remote I/Os, X2 Control provides an elegant, scalable and cost-effective all-in-one solution
- The EtherCAT technology is designed for speed - fully Ethernet-compatible and truly open
- Unifying HMI and soft control means:

Reduced cost by eliminating components and wiring

Less space required and improved operation by centralizing remote access and administration



BoX2 control

Clever connectivity. Smarter functions.

BoX2 is a series of IoT gateways offering clever connectivity and the possibility to add optional smart functions. BoX2 series gateways enable customers to create high-technological modern solutions for essential application requirements in the industry.

Features

Smarter functions

Add smarter functions such as local data base storage, alarm servers, data exchange, reporting, C# scripting, etc. via the iX software.

Connect to ERP systems, analytic tools, etc.

BoX2 supports OPC UA, a communication protocol designed to connect ERP systems, analytic tools, etc. with real-world data.

Drivers for all major brands

BoX2 can access all data hidden in your machines or facility through more than 75 PLC driver families from all leading controller brands.

Easy configuration with WARP

Create integrated solutions with WARP Engineering Studio and configure all hardware, software and communication in a few minutes.

Safe storage, access and administration

Beijer cloud is hosted on Microsoft Azure with administration of organization, user, devices, device groups, cloud tags and roles via WARP.

Powerful local logic control

Fully integrated IEC 61131-3 development tool with integrated compilers, object-oriented programming, alarm management, add-ons, etc.

Secure all the way

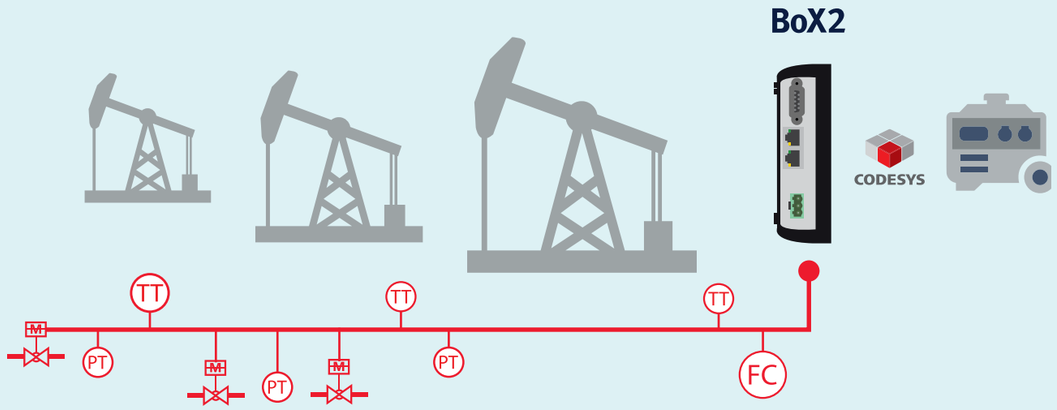
BoX2 has a traceable unique identity used to identify the device in the cloud. BoX2 devices are never visible on the public internet.

Cross-platform mobile applications

HTML5 appears the same across all platforms and browsers, simplifying coding and is faster and more adaptive.

Control everything from one device

BoX2 enables you to perform powerful local logic control. CoDeSys is a fully integrated development system. Complete with integrated compilers, object-oriented programming, alarm management and add-ons such as UML/SYN integration. CoDeSys can be embedded in virtually any system offering code transparency between systems.



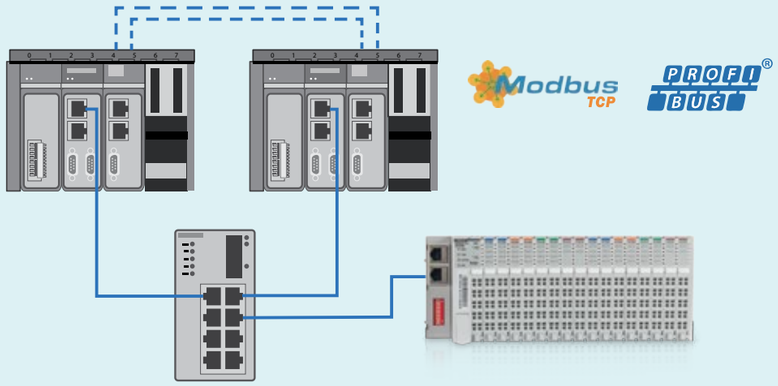
Nexto

Scalable, modular Controller empowers you with complete control

Reliable – complete solution for non-stop automation
Scalable – from small to big applications
Efficient – CoDeSys do the job

- **The Nexto modular Controller brings you the next generation of programmable controllers, where technique is designed to complement you**
- **Nexto delivers premium reliability and connectivity**
- **There's an integrated programming environment along with cutting-edge technology supplying hot-swap functionality**
- **In addition, Nexto features one-touch diagnostics with clear and bright LCD display**

CPU redundant Architecture



Nexto product overview

Racks
NX9000 - 8-slot backplane rack
NX9001 - 12-slot backplane rack
NX9002 - 16-slot backplane rack
NX9003 - 24-slot backplane rack
NX9010 - 8-Slot backplane rack (No Hot Swap)
NX9020 - 2-Slot base for panel assembly

Power supply modules
NX8000 - 30 W 24 VDC power supply module

CPUs – central processing units
NX3003 - "slim with built in I/O"
NX3004 - "Compact"
NX3005 - "Webserver"
NX3010 - "Small"
NX3020 - "Medium"
NX3030 - "Redundancy"
NX3810 - Safety CPU SIL3, PROFIsafe

Special modules
NX4000 - bus expansion module
NX4010 - redundancy link module

Fieldbus interfaces
NX5000 - Ethernet Modbus /TCP module
NX5001 - PROFIBUS-DP Master
NX5110 - PROFIBUS-DP Slave
NX5210 - PROFIBUS-DP Redundant Slave
NX5100 - MODBUS TCP Head
NX5101 - MODBUS TCP Head without hotswap, with 14 digitial inputs and 10 digital outputs

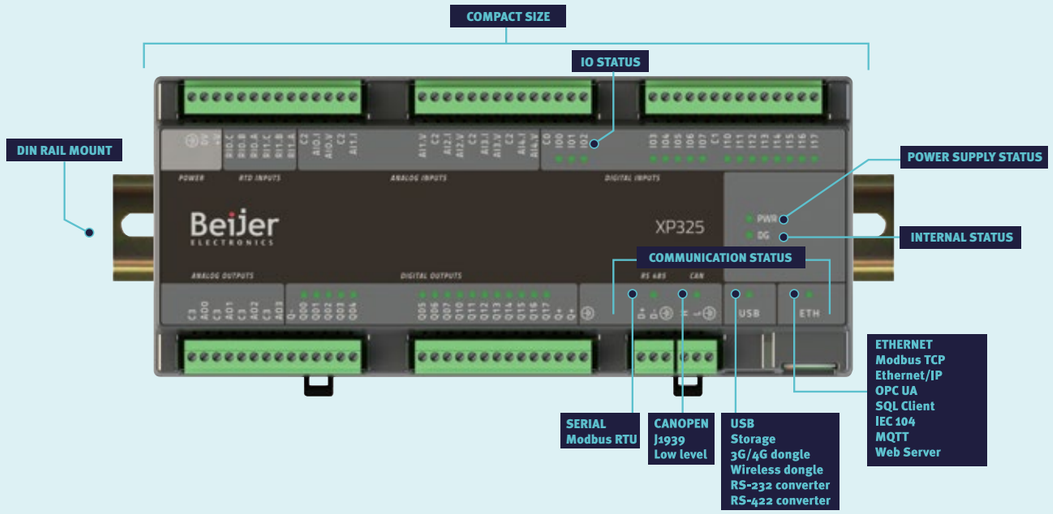
I/O modules
NX1001 - 24 Vdc 16 DI module
NX1005 - 24 Vdc 8 DO transistor / 8 DI
NX1800 - safety DI
NX2001 - 24 Vdc 16 DO transistor module
NX2020 - 16 DO relay module
NX2800 - safety DO
NX6000 - 8 AI voltage/current module
NX6010 - 8 AI Thermocouple module
NX6020 - 4 AI RTD module
NX6100 - 4 AO voltage/current module
NJ1001 - 24 Vdc 16 DI module
NJ1005 - 24 Vdc 8 DO transistor / 8 DI
NJ2001 - 24 Vdc 16 DO transistor module
NJ6000 - 8 AI voltage/current module
NJ6001 - 6 AI voltage/current module – 12-bit
NJ6005 - 6 AI / 4 AO V/I module – 12-bit
NJ6010 - 8 AI Thermocouple module
NJ6011 - 4 AI Thermocouple module
NJ6020 - 4 AI RTD module
NJ6100 - 4 AO voltage/current module
NJ6101 - 4 AO voltage/current module – 12-bit

Accessories
NX9100 - left/right side rack ends
NX9102 - rack connector cover

Software
BCS Tools LITE
BCS Tools BASIC
BCS Tools PROFESSIONAL
BCS Tools ADVANCED

Nexto Xpress series

Nexto Xpress compact controllers with embedded IOs are the perfect match for smaller and medium sized control applications.



Why choose Nexto Xpress ?

Industry 4.0 ready by connectivity via OPC UA, MQTT & Microsoft SQL client.

Cost-efficient in a compact format offering the perfect mix of digital and analog I/Os.

Perfect within machinery, building automation, water and waste water, infrastructure, etc.

Same powerful CoDeSys programming environment for all Nexto controllers.

Expandable with additional Xpress units, G series or Nexto Jet series remote I/O.

Wide range of connectivity options using standard industrial protocols.

Built-in high speed I/O for precise machine control.

Interface with other equipment via integrated CAN bus.

Functions	XP300	XP315	XP325	XP340
Digital inputs (DI) /outputs (DO)				
Inputs (DI)	16	16	16	16
Outputs (DO)				
Analog inputs (12-bit resolution)				
0 to 10 V	N/A	5	5	5
0 to 20 mA, 4 to 20 mA				
RTD inputs				
Pt100, Pt1000	N/A	2	2	2
Liner: 0 to 400 Ω				
Analog onputs (12-bit resolution)				
0 to 10 V	N/A	N/A	4	4
0 to 20 mA, 4 to 20 mA				
Ethernet TCP/IP interface				
Webserver	N/A	N/A	N/A	YES
IEC104	N/A	N/A	N/A	YES
OPC UA/DA server	YES	YES	YES	YES
ARTI				
SQL Client				
Modbus/TCP				
MQTT				
Ethernet IP (scanner)				
SNTP Client				
SNMP Agent (Ethernet Network Managment)				
Serial interface				
Modbus RTU	YES	YES	YES	YES
CAN interface				
CANopen Master/Slave	YES	YES	YES	YES
CAN Low Level				
J1939 (extra license fee needed)				
USB interface				
Storage	YES	YES	YES	YES
3G/4G dongle				
Wireless dongle				

Distributed IO for smart solutions and CODESYS control

The G series distributed IOs provide you with supreme field and bus connectivity for smart integrated solutions through a wide range of digital, analog and special modules for almost any signal type.

Communicate effectively with overlying systems or other equipment via widely used communication protocols by combining slice I/Os with a network adapter module to match your requirements.

Whatever configuration you choose you can easily advance to a powerful distributed CODESYS control solution. G series CODESYS controller modules support MODBUS TCP and RTU protocols. And with the powerful CODESYS software platform you´ll enjoy program speed every bit as fast as the classic PLC.

The G series conforms to CE, UL and FCC standards making it suitable for tough industrial applications anywhere.

Using WARP Engineering Studio, you can configure IO nodes and create smart integrated solutions utilizing the full scope of the G series in combination with other Beijer Electronics products.

Full connectivity

Communicate effectively with other equipment or systems via widely used industrial communication protocols. G series network adapters offer Ethernet interface as a programming port.

Plug in, plug out

The IO modules feature removable terminal blocks (RTB). Unplug the RTB, release the DIN rail lock and slide off the module you want to exchange. Insert the new one, lock – and plugin the RTB with all wiring fixed. Done.

Fully certified

The G series conforms to CE, UL and FCC standards making it suitable for tough industrial applications anywhere.

Build to size

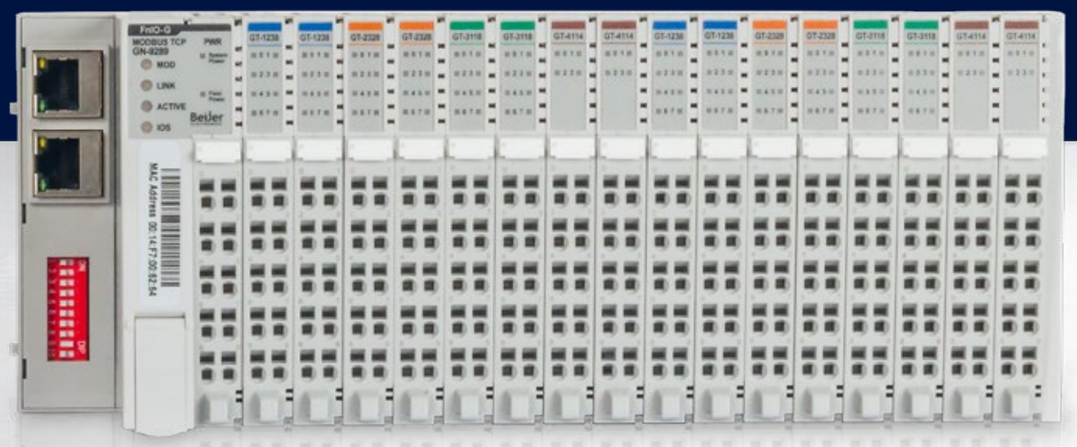
Build your system to the exact size, specifications and IO signals for your needs. An IO node can be expanded from just a few slices up to 63 slices when needed.

Advance to CODESYS control

Upgrade your distributed IO solution to an advanced CODESYS control solution simply by replacing the standard network adapter with a CODESYS controller module.

Integrated solutions

The G series perfectly complements our range of hardware and software products enabling you to create integrated solutions and control, connect and present data.



G series for extended performance

The G series offers better performance than standard IOs. Higher IO and network scan frequency and a wide range of industrial certifications lets you operate safely in tough industrial applications.

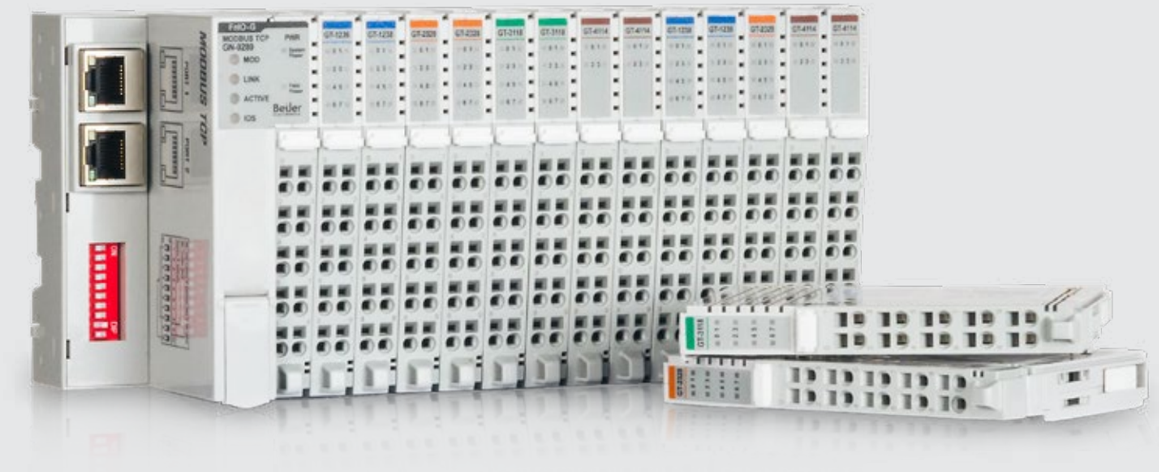
Mix and match to your specific needs

Connect to everything, from digital and analog input and output, to special IO signals like high-speed IOs, temperature and communication IOs.

Get the building blocks you need for the exact functionality you want. Start with a compact network adapter and add slice IO modules to fit your requirements. Easily design and configure your IO installation in WARP Engineering Studio.

Your requirements, your choice.

All modules are color-coded to make them easy to identify. Here is an overview of the modules available:



Network adapter modules

Part no.	Type no.	Description	Replaces *1
100-8016	GN-9273	Modbus RTU network adapter, 128 bytes input and 128 bytes output, max 63 slices	NA-9173/ 9473
100-8015	GN-9289	Modbus TCP network adapter, 128 bytes input and 128 bytes output, max 63 slices	NA-9289
100-8017	GN-9386	EtherCAT network adapter, 128 bytes input and 128 bytes output, max 63 slices	NA-9286
100-8060	GN-9261	CANopen network adapter, 252 bytes input and 252 bytes output, max 63 slices	NA-9261
100-8061	GN-9222	PROFIBUS DP/V1 network adapter, 244 bytes input/244 bytes output, max 63 slices	NA-9222

CODESYS controller module

Part no.	Type no.	Description	Replaces *1
100-8018	GN-9372	Programmable I/O with CODESYS, 16Mb application memory, file system, Modbus RTU/TCP master/slave, up to 63 slices	NA-9372 NA-9373

Digital input modules

Part no.	Type no.	Description	Replaces *1
100-8000	GT-1238	8 digital input (24VDC), sink/source, cage clamp, 10pt removable terminal	ST-1228
100-8064	GT-12DF	16 digital input (24VDC), sink/source, cage clamp, 18pt removable connector, height 109 mm	N/A (new)
100-8003	GT-1804	4 digital input (120VAC), cage clamp, 10pt removable terminal	ST-1804
100-8004	GT-1904	4 digital input (240VAC), cage clamp, 10pt removable terminal	ST-1904

Digital output modules

Part no.	Type no.	Description	Replaces *1
100-8005	GT-2318	8 digital output (24VDC/0.5A), sink, cage clamp, 10pt removable terminal	ST-2318
100-8006	GT-2328	8 digital output (24VDC/0.5A), source, cage clamp, 10pt removable terminal	ST-2328
100-8007	GT-2618	8 digital output (24VDC/2A), sink, cage clamp, 10pt removable terminal	ST-2618
100-8008	GT-2628	8 digital output, (24VDC/2A), source, cage clamp, 10pt removable terminal	ST-2628
100-8010	GT-2744	4 digital output relay (24VDC/2A, 240VAC/2A), cage clamp, 10pt removable terminal	ST-2744
100-8065	GT-225F	16 digital output (24VDC/0.3A), sink, cage clamp, 18pt removable terminal, height 109mm	N/A (new)
100-8066	GT-226F	16 digital output, (24VDC/0.3A), source, cage clamp, 18pt removable terminal, height 109mm	N/A (new)

Analog input modules

Part no.	Type no.	Description	Replaces *1
100-8067	GT-3114	4 analog input (0~20/4~20mA), 12bit resolution, cage clamp, 10pt removable terminal	ST-3114
100-8036	GT-3118	8 analog input (0~20/4~20mA), 12bit resolution, cage clamp, 10pt removable terminal	ST-3118
100-8068	GT-3424	4 analog input (0~10/0~5/1~5 V), 12bit resolution, cage clamp, 10pt removable terminal	ST-3424
100-8038	GT-3428	8 analog input (0~10/0~5/1~5 V), 12bit resolution, cage clamp, 10pt removable terminal	ST-3428
100-8040	GT-3704	4 analog input RTD (PT100/PT1000/ Ni1000LG), 16bit resolution, cage clamp, 10pt removable terminal	ST-3704
100-8041	GT-3708	8 analog input RTD (PT100/PT1000/ Ni1000LG), 16bit resolution, 20pt connector	ST-3708
100-8044	GT-3804	4 analog input thermocouple (K/J/T/B/R/ S/E/N/L/U/C/D), 16bit resolution, cage clamp, 10pt removable terminal	ST-3804
100-8048	GT-3914	4 analog input differential current (0~20/4~20/-20~20mA), 12bit resolution, cage clamp, 10pt removable terminal	N/A (new)
100-8049	GT-3924	4 analog input differential voltage (0~10/0~5/-10~10/-5~5V), 12bit resolution, cage clamp, 10pt removable terminal	N/A (new)

Analog output modules

Part no.	Type no.	Description	Replaces *1
100-8025	GT-4114	4 analog output (0~20mA), 12bit resolution, cage clamp, 10pt removable terminal	ST-4114
100-8026	GT-4118	8 analog output (0~20mA), 12bit resolution, cage clamp, 10pt removable terminal	ST-4114
100-8070	GT-4424	4 analog output (0~10 V), 12bit resolution, cage clamp, 10pt removable terminal	ST-4424
100-8027	GT-4428	8 analog output (0~10 V), 12bit resolution, cage clamp, 10pt removable terminal	ST-4424

Special modules

Part no.	Type no.	Description	Replaces *1
100-8030	GT-5112	2 channel high speed counter (up to 100kHz/24 V DC), cage clamp, 10pt removable terminal	ST-5112
100-8033	GT-5221	1 channel serial interface (RS422, 300~115 200bps), cage clamp, 10pt removable terminal	ST-5221
100-8034	GT-5231	1 channel serial interface (RS485, 300~115 200 bps), cage clamp, 10pt removable terminal	ST-5231

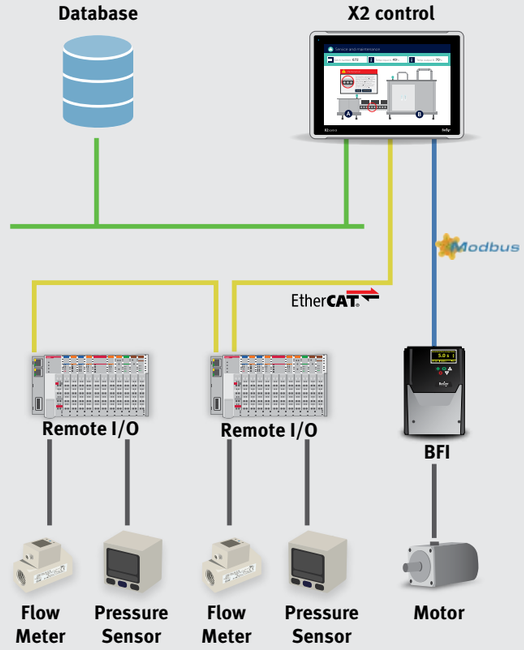
Power modules

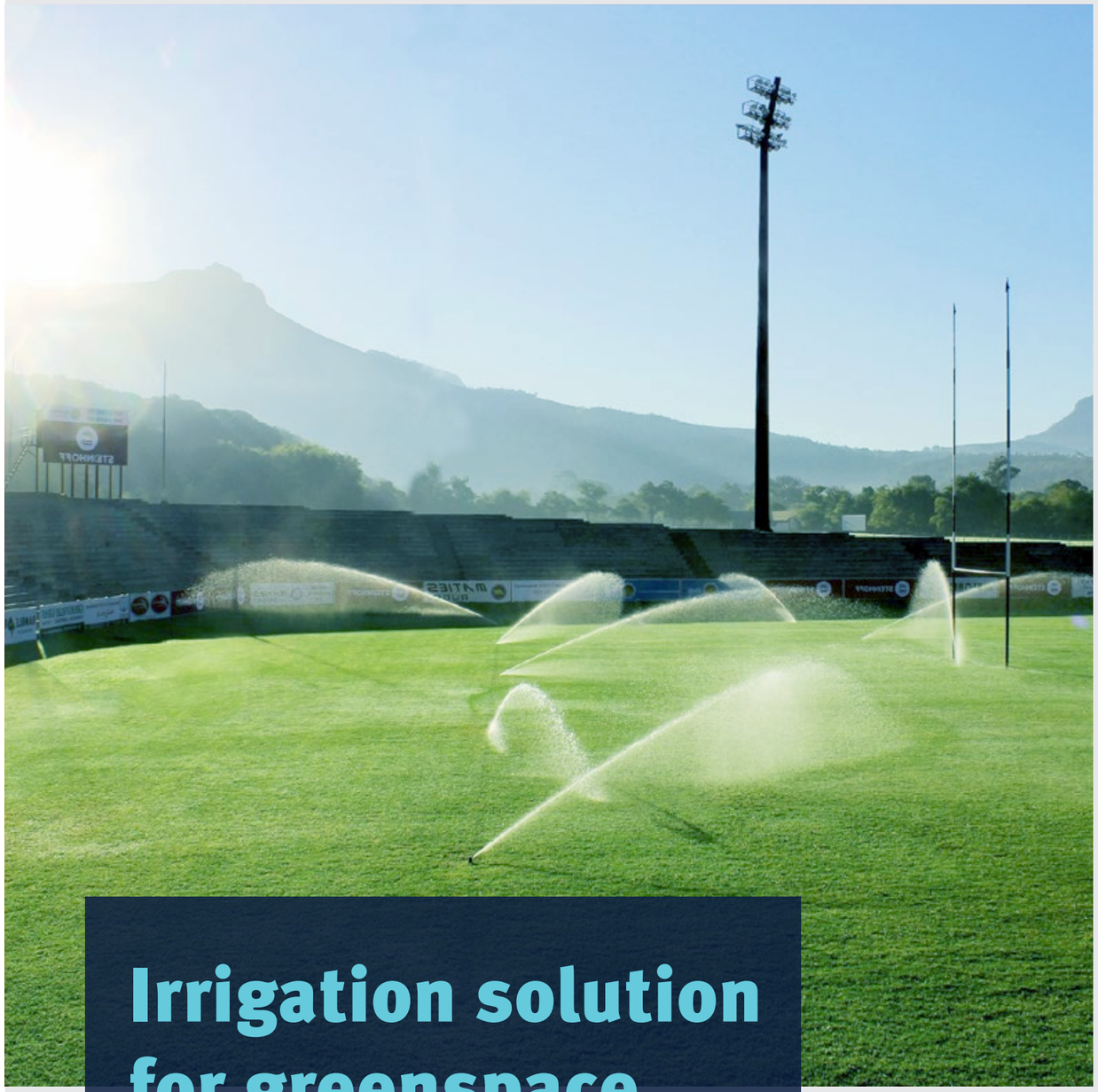
Part no.	Type no.	Description	Replaces *1
100-8019	GT-7408	Potential distributor module, 8 connections for shield, cage clamp, 10pt removable terminal	ST-7008
100-8020	GT-7508	Potential distributor module, 10 connections for 0V, cage clamp, 10pt removable terminal	ST-7508
100-8021	GT-7511	Power expansion supply module, input 24VDC, output 5VDC/1A, cage clamp, 10pt removable terminal	ST-7511
100-8022	GT-7518	Potential distributor module, 10 connections for 24VDC, cage clamp, 10pt removable terminal	ST-7518
100-8023	GT-7588	Potential distributor module, 5 connections for 0V/5 connections for 24VDC, cage clamp, 10pt removable terminal	ST-7588
100-8024	GT-7641	Field power distribution module, 24/48VDC, 110/220VAC, cage clamp, 10pt removable terminal	ST-7641

Chlorine Dioxide Generator

CUSTOMER CASE

- The power of iX developer was key. The X2 control 7 has in excess of 70 pages.
- The scaleable elegance of an EtherCAT network. Want more I/O? just drop on another EtherCAT node!
- The larger Chlorine Dioxide Generator system for which they also use Beijer, consists of X2 Control 15 with 5 No. EtherCAT stations and more remote I/O.
- Support commercially and technically we are a cut above the competition.

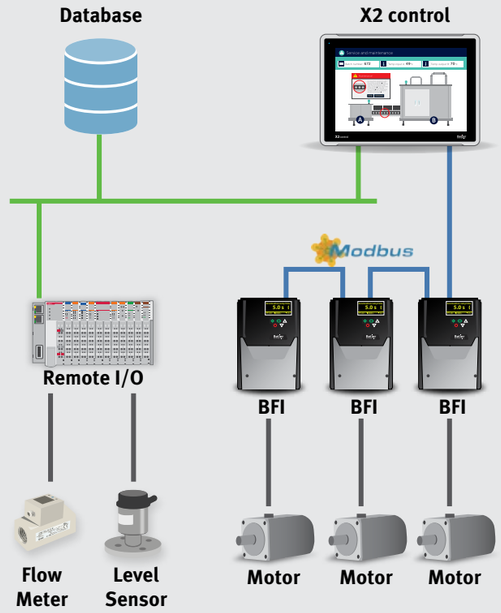




Irrigation solution for greenspace management

CUSTOMER CASE

- The customer is one the major irrigation players on the Swedish market.
- Greenspace management – irrigation solution which contains one X2 control, remote I/O and 3 pieces of frequency inverter BFI-H3 15 kW.
- We have a cost effective solution with fantastic functionality by using iX and CoDeSys together with built-in pump functionality of the Frequency inverters.



- Applications are Irrigation of golf courses and football fields.

About Beijer Electronics

Beijer Electronics is a multinational, cross-industry innovator that connects people and technologies to optimize processes for business-critical applications. Our offer includes operator communication, automation solutions, digitalization, display solutions and support. As experts in user-friendly software, hardware and services for the Industrial Internet of Things, we empower you to meet your challenges through leading-edge solutions.

Beijer Electronics is a Beijer Group company. Beijer Group has a sale over 1.4 billion SEK in 2018 and is listed on the NASDAQ OMX Nordic Stockholm Small Cap list under the ticker.

Our website : www.beijerelectronics.tw

CHINA
Shanghai

DENMARK
Roskilde

FRANCE
Paris

GERMANY
Nürtingen

NORWAY
Drammen

SOUTH KOREA
Seoul

SWEDEN
Göteborg
Jönköping
Malmö
Stockholm
Timrå

TAIWAN
Taipei

TURKEY
Istanbul

UNITED KINGDOM
Nottingham

USA
Salt Lake City

Beijer ELECTRONICS

APAC Head Office | Taiwan
Beijer Electronics Corp.
14F., No.215, Sec. 3, Beixin Rd., Xindian Dist.,
New Taipei City 23143, Taiwan
info.tw@beijerelectronics.com
www.beijerelectronics.tw | +886 2 2218 3600

Korea
Beijer Electronics Korea
No. 1804-1 , 128, Gasan Digital 1-ro,
Geumcheon-gu, Seoul, Korea. 153-795
info.kr@beijerelectronics.com
www.beijerelectronics.tw | +82 (0)2-853-0602